UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,138	07/31/2001	Zhen Liu	YOR920000760US2	5664

			EXAMINER
35526	7590	07/27/2004	CHEN, TSE W

DUKE. W. YEE
YEE & ASSOCIATES, P.C.
P.O. BOX 802333
DALLAS, TX 75380

ART UNIT	PAPER NUMBER
2116	

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/920,138	LIU ET AL.
	Examiner	Art Unit
	Tse Chen	2116

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>31 July 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-27</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,5,7-12,14,16-21,23 and 25-27</u> is/are rejected.

7)☒ Claim(s) <u>4,6,13,15,22 and 24</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>14 June 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-3, 5, 7-12, 14, 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by

Skelly et al., U.S. Patent 6661810, hereinafter Skelly.

3.   In re claim 1, Skelly discloses a method for removing the effect of clock skew between

data processing systems [abstract; col.3, l.62 -- col.4, l.13], comprising:

- Making delay measurements between two data processing systems [device 102s; sender

   and receiver] connected by a network [100] [fig.1; col.9, ll.1-6; col.10, ll.29-39].

- Forming a set of data points, wherein each data point in the set of data points comprises a

   time [t] and a delay measurement [d] for the respective time [fig.4; col.7, ll.7-20; col.9,

   ll.6-12].

- Finding a convex hull [feasible region] of the set of data points, wherein the convex hull

   is bounded by a number of line segments [col.9, ll.16-19; col.10, ll.50-63; varying y-

   intercept and slope yields various lines bounding feasible region].

- Selecting a one of the line segments that optimizes an objective function [col.9, ll.19-24;

   col.10, l.64 -- col.11, l.20].

- Extrapolating the one of the line segments to obtain an affine function [col.9, ll.24-26].

- Removing the effect of clock skew between the two data processing systems as characterized by the affine function [col.2, ll.51-58; col.13, l.65 -- col.19, l.40].

4.   As to claims 2 and 11, Skelly discloses that the one of the line segments is selected so that a line containing the one of the line segments will contain a maximal number of data points from the set of data points [col.17, ll.1-7].

5.   As to claims 3 and 12, Skelly discloses that the one of the line segments is selected so that the sum of the vertical distances between each of the set of data points and a line containing the one of the line segments will be minimized [col.17, ll.1-7].

6.   As to claims 5 and 14, Skelly discloses that the one of the line segments is selected so that the area between a plot of a piecewise-linear function containing the set of data points [line skimming through bottom of mass of scatter plot] and a line containing the one of the line segments will be minimized [col.10, l.64 -- col.11, l.20; col.16, ll.54-67].

7.   As to claims 7 and 16, Skelly discloses the x-coordinate of each data point in the set of data points represents a time measurement [fig.4, col.7, ll.7-20; col.9, ll.6-12].

8.   As to claims 8 and 17, Skelly discloses the y-coordinate of each data point in the set of data points represents a delay measurement [fig.4, col.7, ll.7-20; col.9, ll.6-12].

9.   As to claims 9 and 18, Skelly discloses the delay measurement is a communication delay between two data processing systems connected by a network [100] [col.4, ll.24-25; col.7, ll.21-23].

10.   In re claim 10, Skelly discloses each and every limitation of the claim as discussed above in reference to claim 1. Skelly discloses the method of removing the effect of clock skew between data processing systems; therefore, Skelly discloses the computer program product, in a

computer-readable medium, for removing the effect of clock skew between data processing

systems, comprising instructions for executing the method.

Claim Rejections - 35 USC § 103

11.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

12.   Claims 19-21, 23, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Skelly as applied to claims 1 and 9 above, and further in view of Forbes et al., U.S. Patent

6539490, hereinafter Forbes.

13.   In re claim 19, Skelly discloses each and every limitation of the claim as discussed above

in reference to claim 10. Skelly further discloses a data processing system [device 102] for

removing the effect of clock skew between data processing systems [abstract; col.3, 1.62 -- col.4,

1.13], comprising:

- A processing unit [110], wherein the processing unit contains at least one processor

   [col.4, 1.16].

- A memory [col.4, 1.15; inherently, some kind of memory is required in order for

   computer to function].

- A set of instructions [linear program], wherein the processing unit executes the set of

   instructions to perform the acts of [col.8, 1.55 -- col.9, 1.1] as discussed in claim 10 which

   further references claim 1.

14.   Skelly did not discuss a particular interconnection of the components in the data processing system.

15.   Forbes discloses a data processing system [100] for removing the effect of clock skew between data processing systems [abstract], comprising:

- A bus system [170].

- A processing unit [110] connected to the bus system, wherein the processing unit contains at least one processor [fig.15; col.7, l.54].

- A memory [RAM 160] connected to the bus system [fig.15].

16.   It would have been obvious to one of ordinary skill in the art, having the teachings of Skelly and Forbes before him at the time the invention was made, to use the bus system interconnection taught by Forbes with the system disclosed by Skelly as the bus system interconnection taught by Forbes is a well known interconnection suitable for use in the system of Skelly. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way for the components in the system to communicate [col.7, ll.55-65].

17.   As to claim 20, Skelly discloses that the one of the line segments is selected so that a line containing the one of the line segments will contain a maximal number of data points from the set of data points [col.17, ll.1-7].

18.   As to claim 21, Skelly discloses that the one of the line segments is selected so that the sum of the vertical distances between each of the set of data points and a line containing the one of the line segments will be minimized [col.17, ll.1-7].

19.   As to claim 23, Skelly discloses that the one of the line segments is selected so that the area between a plot of a piecewise-linear function containing the set of data points [line skimming through bottom of mass of scatter plot] and a line containing the one of the line segments will be minimized [col.10, l.64 -- col.11, l.20; col.16, ll.54-67].

20.   As to claim 25, Skelly discloses the x-coordinate of each data point in the set of data points represents a time measurement [fig.4, col.7, ll.7-20; col.9, ll.6-12].

21.   As to claim 26, Skelly discloses the y-coordinate of each data point in the set of data points represents a delay measurement [fig.4, col.7, ll.7-20; col.9, ll.6-12].

22.   As to claim 27, Skelly discloses the delay measurement is a communication delay between two data processing systems connected by a network [100] [col.4, ll.24-25; col.7, ll.21-23].

Allowable Subject Matter

23.   Claims 4, 6, 13, 15, 22, 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

24.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

      a.   Ravikanth, U.S. Patent 6327274, discloses a computer readable medium having instructions to perform clock skew correction.

      b.   Woolley, U.S. Patent 5959568, discloses various techniques involving convex hull and delay measurements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tse Chen whose telephone number is (703) 305-8580. The examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (703) 308-1159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tse Chen
July 19, 2004

REHANA PERVEEN
PRIMARY EXAMINER